INTRODUCTION

- WHY LEARN PYTHON?
- USES AND BENEFITS

PYTHON IS USED IN:

- DATA ANALYSIS AND MACHINE LEARNING
- WEB DEVELOPMENT
- AUTOMATION AND SCRIPTING
- SOFTWARE TESTING
- ORGANIZING FINANCES

IDENTIFIERS:

- ➔ Name used to identify an object such as variable, module or class or function.
- ➔ There are rules for naming identifiers:
- ❑ First character can only be uppercase/lowercase/underscore(_) but cannot be a digit .
- ❑ No special character should be used.
- ❑ Identifier name should not resemble a keyword.
- ❑ Upper and Lower case characters are significant .
- ➔ isidentifier() can be used to check whether a identifier name is valid / not.

VARIABLES:

- ➔ Variables are containers or reserved memory locations to store data values.
- ➔ Python variables do not need explicit declaration to reserve memory space.
- ➔ Ex: num=1 will directly assign num as an integer variable and dec=2.358 as a float variable
- ➔ type() function returns the type of variable passed as argument.
- ➔ Ex: type(num) will return class<'int'>
- ➔ We can assign and print multiple variables in a single statement
- ➔ Ex: x, y, z = 1, 2.3, "python"

OPERATORS:

- ➔ Operators are used to manipulate the value of the operands.
- ➔ **Types of Operators:**
- ❑ Arithmetic (+, -, * , / , // , **)
- ❑ Relational \ comparison(< , >, = ,!=)
- ❑ Assignment(=, +=, –=)
- ❑ Logical(and, or)
- ❑ Bitwise(& , | , ~ , ^ , << , >>)
- ❑ Membership(in , not in)
- ❑ Identity(is, is not)

COMMENTS AND ESCAPE SEQUENCES:

- # is used for a single line comment.
- “”” is used for a multi line comment .
- ‘\’ is an escape sequence character used for printing desired characters without any errors.
- Ex; print(“\nobody”) will give the output as obody
- Escape sequence characters can be used to print single or double quotes or to give tab space, backspace etc.
- \n is used as a newline character
- There are many other escape sequences in python.

STRINGS:

- ➔ In python, a string can be a single character or a group of characters.
- ➔ len() function gives the length of the string
- ➔ A String is Immutable(it cannot be changed).
- ➔ There are many other string functions
- ❑ isalpha()
- ❑ isalnum()
- ❑ isdigit()
- ❑ count()
- ❑ capitalize()
- ❑ find()
- ❑ replace()
- ❑ strip()
- ❑ startswith()
- ❑ endswith()

STRING SLICING:

- ➔ Positive indexing of a string starts with 0 from the starting of the string
- ➔ Negative indexing starts with -1 from the end of the string,
- ➔ We can divide the string into parts using slicing operations.
- ➔ Ex: mystr=”Python is the best”
- ➔ mystr[0:6] will produce an output “Python”.
- ➔ The ending index will be excluded.
- ➔ We can include one more argument for skipping characters or indices.
- ➔ Ex; mystr[x:y:z] where z is called increment / step / stride
- ➔ For reversing a string take z=-1.

COLLECTION DATA TYPES IN PYTHON

➔ There are 4 built-in data types in python

❑ Lists

❑ Tuples

❑ Dictionaries

❑ Sets

LISTS:

- ➔ A List is a data type that can hold any type of data. It is an ordered sequence of elements that are mutable or changeable.
- ➔ Ex: Grocery=[“Rice”,“salt”,”sugar”,”Maggi”,25,2,3]
- ➔ Lists can have duplicate values. len() function gives the number of items in a list
- ➔ List items can be of any type (int,float,string,boolean)
- ➔ List slicing is same as the string slicing.
- ➔ Some of the list functions are
- ❑ append(element)
- ❑ insert(index,element)
- ❑ sort()
- ❑ reverse()
- ❑ insert()
- ❑ remove()
- ❑ pop()
- ❑ len()

TUPLES:

- ➔ A tuple is a collection of elements / data which are ordered, immutable, and allow duplicate values.
- ➔ The only difference between a list and a tuple is the immutability.
- ➔ Since tuples are indexed, they can have items with the same value
- ➔ When creating a tuple with only one item, remember to include a comma after the item, otherwise it will not be identified as a tuple.
- ➔ You cannot remove / delete items in a tuple.
- ➔ Convert the tuple into a list, remove item, and convert it back into a tuple
- ➔ The del keyword can delete the tuple completely:

SETS:

- ➔ Sets are used to store multiple items in a single variable.
- ➔ A set is a collection which is unordered, unchangeable, and unindexed.
- ➔ Set items can appear in a different order every time you use them, and cannot be referred to by index or key.
- ➔ Once a set is created, you cannot change its items, but you can remove items and add new items.
- ➔ In sets, Duplicate values will be ignored. Once a set is created, you cannot change its items, but you can add new items.
- ➔ To add one item to a set use the add() method.
- ➔ To add items from another set into the current set, use the update() method.
- ➔ To remove an item in a set, use the remove(), or the discard() method.
- ➔ The clear() method empties the set. The del keyword will delete the set completely.

DICTIONARIES:

- Dictionaries are used to store data values in key:value pairs.
- A dictionary is a collection which is ordered, changeable and do not allow duplicates.
- Ex: thisdict = {
- "brand": "Ford",
- "model": "Mustang",
- "year": 1964
- }
- Dictionaries are changeable, meaning that we can change, add or remove items after the dictionary has been created.
- The values in dictionary items can be of any data type.
- The keys() method will return a list of all the keys in the dictionary.
- The values() method will return a list of all the values in the dictionary.

THANK YOU EVERYONE